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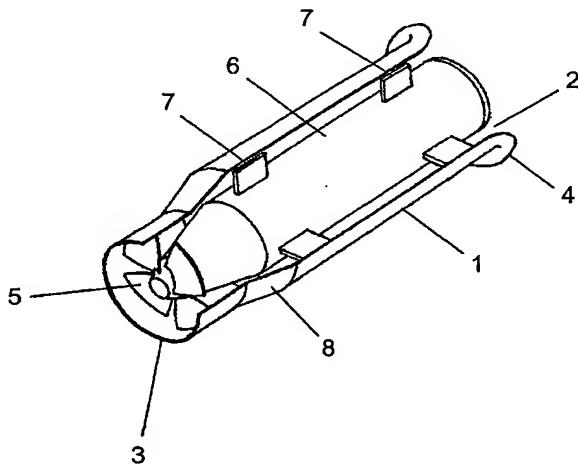
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(54) Title: DREDGING, SCOURING, EXCAVATION AND CLEANING



(57) Abstract: The present invention relates to underwater excavation of sediments and soils and simultaneous controlled movement of the excavated material. In particular, we will describe apparatus for bulk and selective excavation of sand, silt, clay and like materials from sea, river, canal and lake beds, and near-bed movement of the excavated material in a controlled fashion. Controlled, in this sense, refers to the direction and distance of movement and height of transport above the bed. The apparatus, at a smaller scale, may also be used for the removal of bio-fouling from vessels and marine structures; and at a smaller scale still, for hand-held underwater cleaning operations. We describe a fluid jet generating apparatus comprising swirling jet flow creating means. The apparatus suitably includes a duct having a fluid inlet (2) and a fluid outlet (3). In one embodiment, the apparatus comprises a propeller (5) mounted for co-axial rotation within the duct. In an alternative embodiment, the duct incorporates a static swirl generator (45) adapted to impart swirl to a fluid transmitted to the duct under pressure. The duct may further comprise a flared nozzle (47).

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